Response to Distributed Generation Rule Making
28 Feb 02

Introduction

Southern Indiana Gas and Electric Company, d/b/a Vectren Energy Delivery of Indiana, Inc. ("Vectren Energy") supports development of Distributed Generation ("DG"). As reflected in our comments, standardization of processes makes sense, especially in developing smaller DG applications. Vectren Energy believes that larger projects require a fact specific analysis regarding location, technology type and economics that should not be force fit within generally applied guidelines that have been drafted with smaller customers in mind. Therefore, defining the scope and application of any rules and differentiating more complex, larger projects will be an important part of this process.

A) Please provide a definition of distributed generation, including engineering characteristics and unit size. Should the definition differ depending on the customer?

This is a challenging question to define since there is no generally accepted standard throughout the energy industry. Various organizations define Distributed Generation (DG) in numerous fashions including the following: American Gas Association cites units less than 25 MW (AGA White Paper 5/18/01), IEEE P1547 (Interconnection references units of less than 10MW, the Indiana Department of Commerce Energy Policy Division cites units less than 2 MW (IDOC-EPD Distributed Generation Fund Guidelines, 11/18/01), and the Public Service Commission of Wisconsin cites small-scale generation that is less than 1MW (Report to the Legislature on the Development of Distributed Electric Generation in the State of Wisconsin 12/00). This information shows that it is difficult to place an exact numeric limitation in energy produced in order to define DG; however we believe there is an inherent intent of DG no matter which entity defines the size.

The intent of DG is to have localized, modular, and small scale power production to support specific needs in a given local area. The DG solution may be owned/operated by a customer (residential, commercial, and/or industrial), utility or third party entity and provides benefit to the localized load application. Units such as these could include but are certainly not limited to natural gas generators, diesel generators, gasoline generators, renewable fuel source generators (such as photovoltaic, wind, biomass, hydro, etc.), and other generation units. From an engineering viewpoint, distributed generation would encompass many of the same ideas and concerns relative to a large utility generation station. These would include but are not limited to interconnection, quality of the power, energy flow, safety, synchronization, unsynchronized operation, and the like.

Regarding the question of differing definitions based on the type of customer, we believe that the entire program should be designed to take into account the different issues associated with small residential application versus larger commercial/industrial projects.

B) Assuming net metering as the first step in a DG rulemaking, what are the benefits for customers with net metering and what are the possible negative effects?

C) What kind of tariff structure can be used to deal with the different amount and sizes of DG and still make net metering practical?

D) How should the utility determine the fixed amount of cost per customer with net metering, for both net buyer and/or net seller?

General use of net metering is problematic because:

- Net metering provides a subsidy to DG customers via other customers and shareholders while reducing general revenues.
- Net metering does not address the variable (peak vs. off peak) value of the power flow from the customer to the grid.
- Net metering does not necessarily provide benefit to the grid during peak needs.
- Net metering does not address the use of T&D systems.

We believe that net metering may be a functional approach for the following:

- Net metering could be made available to small residential and small commercial customers with limitations.
- Net metering should be used for customers operating small renewable energy sources.
- Net metering should be used for customers using sources that benefit the system at times of greatest need such as photovoltaic.
- Customers using net metering should be responsible for any additional costs incurred by their operation.
- There should be a limitation on the availability of net metering based on number of customers and/or connected load.

E) How do tariffs need to be designed to adequately reflect the efficient recovery of the fixed and variable cost for service to customers that operate DG equipment using a net meter?

Complete economic impact costing that reduces subsidization has the best opportunity to provide a balanced approach regarding DG installations. As stated in section D, the dynamics of electricity require consideration of all relevant costs to produce and provide the product.

F) How can stranded costs be identified and measured?

To the extent facilities are constructed for the benefit of a specific customer, that customer should have some obligation to offset the lost value of these facilities. Special negotiated contract provisions could be used to deal with this issue for new and/or large customers and their DG applications. Smaller DG operations should not raise material issues, at least in the near term.

G) What, if any, are the benefits and revenues that should be considered as offsets to stranded costs?

DG when economically viable and sited appropriately can provide many potential opportunities that have not yet been fully quantified. Further it is likely that the utility will continue to provide certain services to DG customers. In this setting, such issues should not be a stumbling block. If these applications encourage much larger projects, Vectren would wish to perform a full and specific review of the circumstances to determine equitable solutions.

H) What rate design alternatives would reduce the potential for stranded costs?

Properly designed stand-by rates should be developed to address this issue. As for larger projects, specific negotiation of terms would be appropriate.

I) Should standby rates for back-up power be used, and if so under what criteria?

As expressed in H, we believe that stand-by rates are appropriate for DG application and should reflect customer, demand and energy costs.

J) What different kinds of standby services do customers with DG equipment require and can the utility reasonably supply?

Again, this is a very complicated engineering discussion fully dependant upon the type of customer, DG equipment installed, operation intent of the DG system, business need for the customer, service potential for the utility, and the like. Services would include but are certainly not limited to voltage support, demand support, power quality impact (See IEEE 519-1992), short circuit and fault capabilities, and VAR support. These services are currently part of the bundled energy, transmission and distribution service customers receive.

K) In order to determine the necessity and proper design of standby rates we need further information on distribution system design, operations, and cost structure. Please provide any information that might be helpful to develop efficient standby rates.

To design efficient stand-by rates, we advocate this development within the specific utility based on the unique operating circumstances of the service area. In this way equitable treatment of transmission, distribution and energy (demand, timing, etc.) costs can be developed within the appropriate rate structure.

L) Are there areas in Indiana with distribution constraints?

Distribution systems are designed and maintained via generally accepted and sound utility practice and include utilizing national standards from NESC, ANSI, IEEE, and several others. Depending on the size of a specific project, location, and/or its function, constraints might exist that need to be addressed through interconnection and system impact analysis and subsequent agreement surrounding the findings of such analysis.

M) Should utilities be required to file location-specific set of T&D costs?

Since the utility is designed to provide general service for all customers throughout the franchise area, it would be difficult to allocate distribution costs to certain locations. From an engineering and cost allocation standpoint, one can not break-up an integrated distribution system to assign location specific costs.

N) What constitutes an economically efficient buy-back rate?

We believe economically efficient to mean that all costs and market conditions are taken into consideration when defining a buy-back rate. Costs would include but are not limited to infrastructure, environmental, capacity, energy, transmission, distribution, monitoring, dispatch, and safety concerns. Market conditions would take into account such items as the need for excess power, cost of other available power sources, and the value of energy at the time offered. We also believe that the system need for such power must be included in any analysis to address the full system impact (physical and economic) of introducing DG generation into the grid. Customer's should not subsidize higher costs or unnecessary power generated at a DG location.

O) What standard information should be included in a utility standard application form for distributed generation?

Due to the complicated nature of DG installation, communications between the utility and the customer/applicant must be continuous and detailed. We believe several pieces of information in a standard application would be consistent throughout any franchise area including name of applicant, mailing address, account number (if existing customer), business or residential application, anticipated in-service date of generator, and type of unit(s) planned. Further review of information including application of rates, contracts terms, as well as engineering/system analysis for interconnections, transmission and distribution impacts would be required depending on the complexity of the project. Specific technical information regarding the unit and proposed interconnection would then need to be determined to move forward. IEEE P1547 is being developed to address the interconnection standards and there are other existing resources (NEC, UL, IEEE, NFPA, etc) that can be applied for data collection requirements.

P) What costs are incurred by a utility to review a DG project?

We believe costs include but are not limited to rate application, contract development, engineering feasibility, operation review, safety review, metering review, dispatch requirements, and others which shall be borne by the DG customer. Due to the complicated nature of the interaction between generator and utility, many groups within the organization will require input into the process to ensure proper coordination and consideration of all issues. However, a more standardized process for small DG applications such as photovoltaic can be developed

Q) Do these costs vary for different project proposals?

DG project review will have varied costs by project, but will vary based on how DG is defined. If DG were considered any unit below 1MW, then the price variation would be small. However, if the definition of DG is expanded to include more diverse and larger units, it will require additional time and resources for evaluation. This will yield increased costs. There is not enough data to provide costs baselines, but there is indication that costs of review increase with the increase in unit size. As stated in P, a standardized approach to certain technologies can be considered.

R) How long should it take a utility to evaluate a project?

The time for review will follow closely with the answer for costs. Increasing complexity in the DG application will lead to increasing complexity in the evaluation process. Many factors affect the time for completion of an evaluation of any given project due to each project's unique nature. Some simple applications may take several days where a more complex application may take several months to determine all of the issues and mitigation from the resulting installation.

S) What are the criteria a utility should use to evaluate a DG project?

There are numerous issues surrounding installation of generation projects including interconnection, engineering, environmental, power quality, and safety. Since the installation of a unit is highly complicated and system reliability and safety are of premium concerns, utilities will require detailed information regarding any connection to the "grid". Many utilities have varied criteria based on their operating conditions, location, system design and so forth. We believe that there should be flexibility in criteria to allow for various unit installation designs, locations, and types, to ensure consistent high reliability as well as system security and safety. Ultimately as in the other areas, an equitable solution for all stakeholders in the process must be obtained and a flexible solution will enable the utility, customers, and generators to benefit.